What is claimed is:

1. A decentralized control system, comprising:

a plurality of processors;

a plurality of devices controlled by said plurality of processors; and

at least one information transmission path for communicating control information between said plurality of processors and for communicating input/output information between said plurality of processors and the devices,

at least one of said plurality of processors comprising:

processor detecting means for detecting a connection state of each of said plurality of processors with respect to the information transmission path, said connection state showing which processors of said plurality of processors are connected for controlling the plurality of devices, and being represented by an ID of each of said processors;

program block assigning means for assigning, based on the detected connection state detected by said processor detecting means, a plurality of mutually concurrently executable program blocks to control the device to each said plurality of processors, respectively, said assigning means dividing a program for controlling said devices into said mutually concurrently executable plurality of blocks allowing uniform assignment of a processing load to the processors in accordance with an average number of execution steps or an average processing time for one cycle of each of the plurality of program blocks, said assigning means distributing said mutually concurrently executable plurality of blocks to said processors; and

program storage means for storing a relevant one of the plurality of mutually concurrently executable program blocks at the each said plurality of processors, each said plurality of processors executing the stored relevant program blocks, respectively.

2. A decentralized control system in accordance with Claim 1, wherein:

said plurality of processors are beforehand assigned with priority levels and

a particular processor selected in accordance with the priority level from available processors detected by the processor detecting means assigns by the program assigning means processing of the program blocks respectively to said plurality of processors.

3. A decentralized control system in accordance with Claim 1, wherein:

each of said plurality of processors detects by the processor detecting means thereof available processors connected to the information transmission path and assigns by the program assigning means thereof processing of the program blocks respectively to said plurality of processors.

4. A decentralized control system in accordance with Claim 1, wherein:

each one of said plurality of processors generates by the program block assigning means an allocation table in which the program blocks are subdivided into several groups to be respectively assigned to said plurality of processors,

and sends the table to each of said plurality of processors together with all program blocks.

5. A decentralized control system in accordance with Claim 1, wherein:

each one of said plurality of processors subdivides by the program block assigning means the program blocks into program block sets each including several ones of the program blocks and assigns the program block sets respectively to said plurality of processors, and sends the program block sets respectively to said plurality of processors.

6. A decentralized control system in accordance with Claim 1, wherein:

the processor detecting means includes:

means for multicasting via the information transmission path a connection state of its own processor with respect to the information transmission path, the means including the processor detecting means; and

means for generating, in accordance with connection states sent via the information transmission path from other processors, a list of available processors connected to the information transmission path.

7. A decentralized control system in accordance with Claim 1, wherein:

either one of said plurality of processors detects by the processor detecting means, when the connection state of either one of said plurality of processors is changed in the decentralized control system or either one of said plurality of processors fails when the decentralized control system is in operation,

available processors and assigns by the program block assigning means processing of the plural program blocks to the available processors.

8. A decentralized control system in accordance with Claim 1, wherein:

the information transmission path includes two channels, namely, a control information transmission path for communicating the control information and an input/output information transmission path to communicate the input/output information.

9. A decentralized control system network, comprising:

a plurality of processors;

at least one device controlled by the plurality of processors; and

at least one information transmission path for communicating control information between the plurality of processors and for communicating input/output information between the plurality of processors and the device, wherein

at least one of the plurality of processors includes:

processor detecting means for detecting a connection state of each of the plurality of processors with respect to the information transmission path, the connection state showing which processors of said plurality of processors are connected for controlling the at least one device;

program block assigning means responsive to an output from the processor detecting means for assigning, based on the detected connection state

from said processor detecting means, a plurality of mutually concurrently executable program blocks to control the device respectively to available ones of the plurality of processors and to allow uniform assignment of a processing load to the processors in accordance with an average number of execution steps or an average processing time for one cycle of each of the plurality of program blocks; and

program storage means for storing a relevant one of the plurality of mutually concurrently executable program blocks at the respective available ones of said plurality of processors, the respective available ones of said plurality of processors executing the stored relevant program block.

10. A decentralized control system network in accordance with Claim 9, wherein

each of the processors includes state transmitting means for transmitting, in place of the processor detecting means, information indicative of whether or not its own processor is available in the system to the transmission path.

11. An operation method for use with a decentralized control system network including a plurality of processors, a plurality of devices controlled by the plurality of processors, and at least one information transmission path for communicating control information between the plural processors and for communicating input/output information between the plurality of processors and the device, comprising:

detecting by at least one of the plurality of processors a connection state of each of the plurality of processors with respect to the transmission path, said connection state being represented by an ID of each of said processors and showing which processors of said plurality of processors are connected for controlling the plurality of devices;

assigning, in response to a detection result from the processor detecting step, and based on the detected connection state, a plurality of mutually concurrently executable program blocks to control the device to available ones of the plurality of processors, respectively, said assigning including:

dividing a program for controlling said devices into said mutually concurrently executable plurality of blocks, and

distributing the mutually concurrently executable program blocks to said devices to be controlled to allow uniform assignment of a processing load to the processors in accordance with an average number of execution steps or an average processing time for one cycle of each of the plurality of program blocks; and

storing the assigned mutually concurrently executable program blocks in said available processors, respectively.

12. An operation method of a decentralized control system network in accordance with Claim 11, further including in place of the detecting step of each of the processors, a step of transmitting to the transmission path an indication whether or not its own processor is available in the system.

13. A computer-readable recording media for storing thereon a program executable by a computer an operation method for use with a decentralized control system network including a plurality of processors, at least one device controlled by the plurality of processors, and at least one information transmission path for communicating control information between the plurality of processors and for communicating input/output information between the plurality of processors and the device, the program comprising:

detecting by at least one of the plurality of processors a connection state of each of the plurality of processors with respect to the transmission path, the connection state showing which processors of said plurality of processors are connected for controlling the at least one device;

assigning, in response to a detection result from the processor detecting step, and based on the detected connection state, a plurality of mutually concurrently executable program blocks to control the device to available ones of the plurality of processors, respectively, and to allow uniform assignment of a processing load to the processors in accordance with an average number of execution steps or an average processing time for one cycle of each of the plurality of program blocks; and

storing the assigned mutually concurrently executable program blocks in said available processors, respectively.

14. A computer-readable recording media in accordance with Claim 13,

the program further including, in place of the detecting step, a step of transmitting to the transmission path an indication whether or not its own processor is available.

15. For a decentralized control system network including a plurality of processors, at least one device controlled by the plurality of processors, and at least one information transmission path for communicating control information between the plurality of processors and for communicating input/output information between the plurality of processors and the device, a program to be used by at least one of the plurality of processors executes the following steps of:

detecting in at least one of the plurality of processors a connection state of each of the plurality of processors with respect to the transmission path, the connection state showing which processors of said plurality of processors are connected for controlling the devices;

assigning, in response to a detection result from the processor detecting step, and based on the detected connection state, a plurality of mutually concurrently executable program blocks to control the device to available ones of the plural processors, respectively, and to allow uniform assignment of a processing load to the processors in accordance with an average number of execution steps or an average processing time for one cycle of each of the plurality of program blocks; and

storing the assigned mutually concurrently executable program blocks in said available processors, respectively.

16. A program in accordance with Claim 15 further executes in place of the detecting step of each of the processors, a step of transmitting to the transmission path an indication whether or not its own processor is available.

17. A decentralized control system in accordance with Claim 1, wherein each of numbers of instructions of the mutually concurrently executable program blocks to be assigned to each of the processors are made substantially equal.

18. A decentralized control system in accordance with Claim 9, wherein each of numbers of instructions of the mutually concurrently executable program blocks to be assigned to each of the processors are made substantially equal.

19. A decentralized control system in accordance with Claim 11, wherein each of numbers of instructions of the mutually concurrently executable program blocks to be assigned to each of the processors are made substantially equal.

20. A decentralized system in accordance with Claim 13, wherein each of numbers of instructions of the mutually concurrently executable program blocks to be assigned to each of the processors are made substantially equal.

21. A decentralized control system in accordance with Claim 15, wherein each of numbers of instructions of the mutually concurrently executable program blocks to be assigned to each of the processors are made substantially equal.